



JANUARY 1989

# NOTABLE DATES IN THE HISTORY

## OF THE

# COLLEGE OF AGRICULTURAL AND LIFE SCIENCES

**1849** First class enrolls at the University of Wisconsin.

**1862** The Morrill Act is signed into law by President Abraham Lincoln, establishing a national system of colleges devoted to agriculture and mechanical arts, and funded in part by federal land grants.

**1868** W.W. Daniells hired as first Professor in the Department of Agriculture, College of Arts.

**1880** W.A. Henry hired as Professor of Botany and Agriculture.

**1881** Wisconsin Legislature makes first appropriation for agricultural research (\$4,000).

**1883** Agricultural programs sited in UW-Madison South Hall, renamed Agricultural Hall.

Wisconsin Agricultural Experiment Station authorized by Wisconsin Legislature. Prof. Henry becomes first director, and horticulture/botany, agriculture, and agricultural chemistry are established as the three departments within the station.

Department of Agricultural Chemistry is organized under Prof. H.P. Armsby.

William Trelease hired as Professor of Botany and Horticulture.

**1885** A.B. Seymour hired as Professor of Botany in the Department of Agriculture.

Wisconsin Legislature appropriates funds for Farmer Institutes—the forerunner in Wisconsin of the Cooperative Extension Service program.

**1886** First Farm Short Course instruction held.

**1887** Congress passes the Hatch Act which promoted agricultural research by supporting an Agricultural Experiment Station in each state.

**1888** Department of Horticulture and Economic Entomology established.

Stephen M. Babcock hired as Professor of Agricultural Chemistry.

F.H. King hired as Professor of Agricultural Physics.

**1889** Department of Agricultural Physics is established under Prof. King.

College of Agriculture (College of Agricultural and Life Sciences) authorized by Wisconsin Legislature.

**1890** Round silo researched and construction improvements made to reduce spoilage.

Babcock test for butterfat developed. It is still an official milk test, and is the most common basis for milk payments received by farmers.

The second Morrill Act becomes law, providing additional federal funding for the land grant colleges, and establishing land grant institutions for black students in southern states.

**1891** Hiram Smith Hall constructed for \$30,000.

Prof. Henry named first Dean of the College of Agriculture.

J.A. Craig is appointed as first Professor of the Department of Animal Husbandry. During these early years, the department includes both dairy and meat animal courses, dairy processing, and veterinary science.

**1893** Department of Agricultural Bacteriology formed.

**1894** Tuberculin testing of cattle started. UW dairy herd destroyed to demonstrate to skeptical farmers the effectiveness of tuberculin test.

Researchers develop a formula for determining yield of cheese from a given lot of milk. Basic formula is still in use.

Prof. King and associates conduct first quantitative study in the United States of wind erosion and preventive measures. Work leads to recommendations on tree shelter belts and other strategies for controlling wind erosion on central Wisconsin sandy soils.

**1895** Bacteriologists develop proper methods for pasteurization of milk and heat treatment of canning peas.

**1896** First study in the United States to measure crop water requirements and need for irrigation in humid regions.

Techniques developed for use of lactic acid bacteria (starter cultures) in making cheese from pasteurized rather than raw milk. Virtually all cheese is now made this way.

**1897** A cold curing procedure for cheese greatly improved product quality and is still standard practice.

**1898** Dean Henry publishes first edition of "Feeds and Feeding," the "Bible" to farmers and others designing balanced livestock rations.

Prof. King and associates conduct first comprehensive wind power study in country. Windmills installed on roof and turrets of soil science building (now King Hall).

**1902** Agriculture Hall built at a cost of \$150,000.

**1903** Dairy researchers develop paraffining technique for cheese to control surface mold growth during ripening.

**1904** Department of Agronomy is organized.

**1905** Swiss cheese quality improved by research effort describing abnormal fermentations.

Department of Soil Science is created as the first such department in the United States. Department of Agricultural Engineering is established. (Both result from division of Agricultural Physics.)

**1906** First county dairy association established.

Congress passes the Adams Act, providing supplemental funding to state Agricultural Experiment Stations to support "original" theoretical research. These basic research investigations generate knowledge that allows revolutionary applied research approaches to make quantum leaps in problem solving.

**1907** Harry L. Russell selected as second Dean of the College of Agriculture.

Single-grain nutrition experiments are conducted. They are the basis for highly significant vitamin research that followed.

**1908** Stock Pavilion built at a cost of \$80,000, large enough to allow of horses hitched to a wagon to circle in the arena.

Department of Agricultural Journalism is created, first of its kind in the United States.

Prof. King publishes design and benefits of ventilation system for dairy barns. Publication summarizes work begun in 1891, and became standard reference for barn ventilation until power fans became available.

**1909** The College's first Agricultural Research Station is started at Spooner with a gift of 80 acres of land to the University by local community.

Department of Horticulture and Economic Entomology is divided to form separate departments of Horticulture and Entomology. Department of Poultry Husbandry, now known as Department of Poultry Science, is established.

First Honorary Recognition Program pays tribute to outstanding rural leaders.

Prof. Henry C. Taylor leads efforts to establish the Department of Agricultural Economics, the first such program in the United States.

**1910** The Genetics Laboratory (Department), known then as the Experimental Breeding Department, is the first such department established in the United States.

First work on cheese flavor components reveals that fatty acids and esters are important in Cheddar cheese flavor.

Department of Plant Pathology established.



The horse barn on Linden Dr., shown here in 1902, has been remodelled several times. Now a registered historic landmark, it still houses livestock.



**1911** Plant pathologists start research on yellows-resistant cabbage which saves cabbage and kraut industries.

Agronomists begin oat breeding work. First practical oat hybrid results.

Ashland Agricultural Research Station established.

Charles Galpin is the nation's first Professor of Rural Sociology. His research on Walworth County established the field of rural sociology, and inspired the development of the field of human ecology.

Wisconsin Canners Association becomes the first industry group to support Agricultural Experiment Station work in state.

**1912** In 1912 Oneida County and the College teamed up to hire E.L. Luther as Wisconsin's first county agricultural agent.



Marshfield Agricultural Research Station established.

The Department of Veterinary Science is established.

**1913** Biochemists discover Vitamin A. Wisconsin Legislature establishes State Soil Laboratory.

First cheese marketing studies are conducted.

**1914** Bacteriologists develop improved rhizobial bacterial cultures to enhance alfalfa growth.

Agricultural economists begin helping farmers organize cooperatives.

Department of Agricultural Bacteriology, now called Department of Bacteriology, established.

**1915** Rural sociologists complete study of the ecology of rural communities.

The first reliable, quick soil acidity test useful in both the field and lab provided information needed to lime fields. This laid the base for Wisconsin alfalfa production.

**1916** Biochemists discover Vitamin B, leading to prevention of beri-beri.

Hancock Agricultural Research Station established to help farmers deal with "farmed-out," sandy soils of central Wisconsin.

Landscape architecture faculty produce the first in a long series of pioneering publications advocating landscape design in rural environment.

**1917** Home economics section added to state Agricultural Experiment Stations.

**1919** Agricultural information broadcast on 9XM (later WHA) constituting the first regular radio broadcasting in America.

**1922** The Peninsular Agricultural Research Station established.

A rural economics and sociology section added to Agricultural Experiment Stations.

Biochemists demonstrate that cod liver oil (vitamin D) prevents rickets in chicks.

**1923** Bacteriologist starts work on alfalfa silage as a dairy feed.

College identifies Prof. O.R. Zeasman as "soil erosion specialist"—nation's first.

**1924** Biochemists discover food irradiation process to activate Vitamin D. This led to near universal prevention of rickets, and also led to formation of the Wisconsin Alumni Research Foundation—which develops university patents and uses royalties to fund additional UW-Madison research (about \$10 million in 1987).

**1925** Control of onion smut developed.

Congress passes the Purnell Act to expand agricultural economics and rural sociology research.

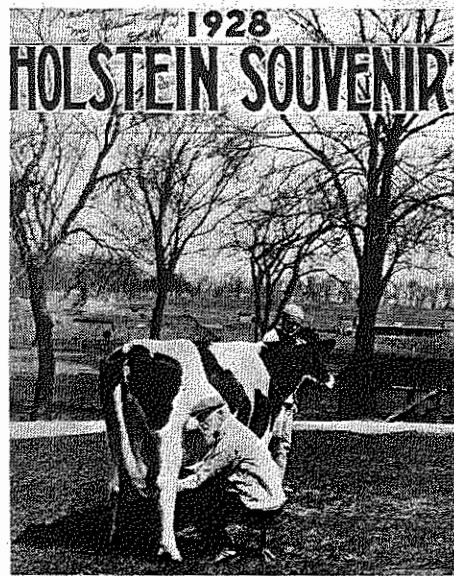
Dean Russell travels to Japan and Australia where he learns of conservation projects in which school children planted trees. He promotes the idea to Wisconsin educators. The effort eventually evolved into Wisconsin's School Forest Program.

**1926** Soil scientists study composition and fertilizer value of Milwaukee sewage sludge.

Dean Russell visits fledgling College of Agriculture at Los Banos in the Philippines. A long-term relationship develops with Los Banos, and helps launch the College as an important contributor to educational institution building in developing countries around the world.

**1927** Agricultural engineers develop field forage harvester to improve quality feed and ease back-breaking labor.

**1928** Agricultural chemist Stephen Babcock's butterfat test was a milestone in dairy science. He was 85 when he posed for this magazine cover in 1928.



Copper and iron salts found to prevent anemia in animal and human diets.

Congress passes the Federal Capper-Ketchum Act, providing increased funding for Cooperative Extension Service. Required state matching for additional federal funding.

**1930** Urea used as partial replacement for protein in sheep and cattle rations.

Department of Rural Sociology was established as a separate unit from Department of Agricultural Economics.

**1931** College scientists develop of rural zoning policies.

Chris L. Christensen, an agricultural economist, named third College Dean.

The College and the U.S. Department of Agriculture establish and operate the Upper Mississippi Valley Conservation Station at LaCrosse.

**1932** Plant breeders release Wisconsin's first corn hybrid.

John Stuart Curry appointed artist in residence in the College of Agriculture—the first position of its kind in the United States.

**1933** College faculty help Oneida County develop the nation's first rural zoning ordinance, which later serves as a model for the entire nation.

College scientists cooperate to provide the first comprehensive watershed conservation plan approved by the federal government. Thus, Coon Valley Watershed, near LaCrosse, becomes the nation's first planned watershed.

**1934** UW Arboretum dedicated. It is developed in accordance with plans prepared by landscape architect G. William Longenecker and wildlife ecologist Aldo Leopold, who conduct experiments in plant community restoration.

**1935** Congress enacts the Bankhead-Jones Act significantly expanding federal support for Agricultural Experiment Stations.

**1936** Practical soybean meal rations for livestock developed.

Dairy foods researchers adapt irradiation process to increase vitamin D content of milk.

Agricultural economists publish "Cooperative Principles and Practices." This work continues to serve as the "Bible" for operations of cooperatives, which now market more than three-fourths of the country's annual 143 billion pounds of milk production.

**1937** Nicotinic acid found to cure pellagra, disease that killed 5,000 people a year at the time.

Research into improved manufacturing procedures and flavor quality of brick cheese is begun, and continues intensively for next 15 years.

**1938** Department of Dairy Husbandry (known as Department of Dairy Science since 1962) created as a separate department after being part of the Department of Animal Husbandry since 1891.

College economists are principal authors of the Chicago Federal Milk Order, which currently prices more than 80 percent of the 25 billion pounds of milk produced annually by Wisconsin dairy farmers.

**1939** First Wisconsin artificial dairy cattle breeding cooperatives established in Rock, Langlade and Barron Counties.

The College established the world's first department of wildlife ecology with Aldo Leopold as its head.



Agronomists, soil scientists and economists cooperate in "whole-farm test demonstration" projects on efficient use of lime and fertilizer.

**1941** Egg yolk extender and buffer for bull semen preservation perfected. These developments laid the cornerstone of artificial breeding industry and led to rapid genetic improvement of dairy cattle.

Coumarin discovered in spoiled sweetclover. Biochemists demonstrate chemical substance to be strong anticoagulant, eventually used for blood clot prevention in human medicine.



Horsepower meant horse power back in 1918, when the college's teams posed for this portrait.



First Wisconsin county-wide Dairy Herd Improvement Association established in Winnebago County to provide central laboratory testing services. Program becomes model for DHIA in Wisconsin.

Vicland oats variety, with resistance to rust and smut, is released.

**1942** Scientists begin work on mass penicillin production. Their techniques eventually make this infection-controlling drug widely available at modest cost—\$60 per standard dose in 1943 compared to less than 25 cents today. Many U.S. troops wounded in World War II benefit from mass produced penicillin.

Fertilizer and lime experiments on Antigo and Spencer silt loam demonstrates that alfalfa can be grown successfully on these northwestern Wisconsin soils (once thought impossible), thus extending dairy production to this region of state.

Agricultural economists describe farm pricing method for milk that recognizes both fat and solids-not-fat components in milk. Previous approaches used only butterfat content to determine value.

**1943** Edwin B. Fred, a bacteriologist, is named College Dean.

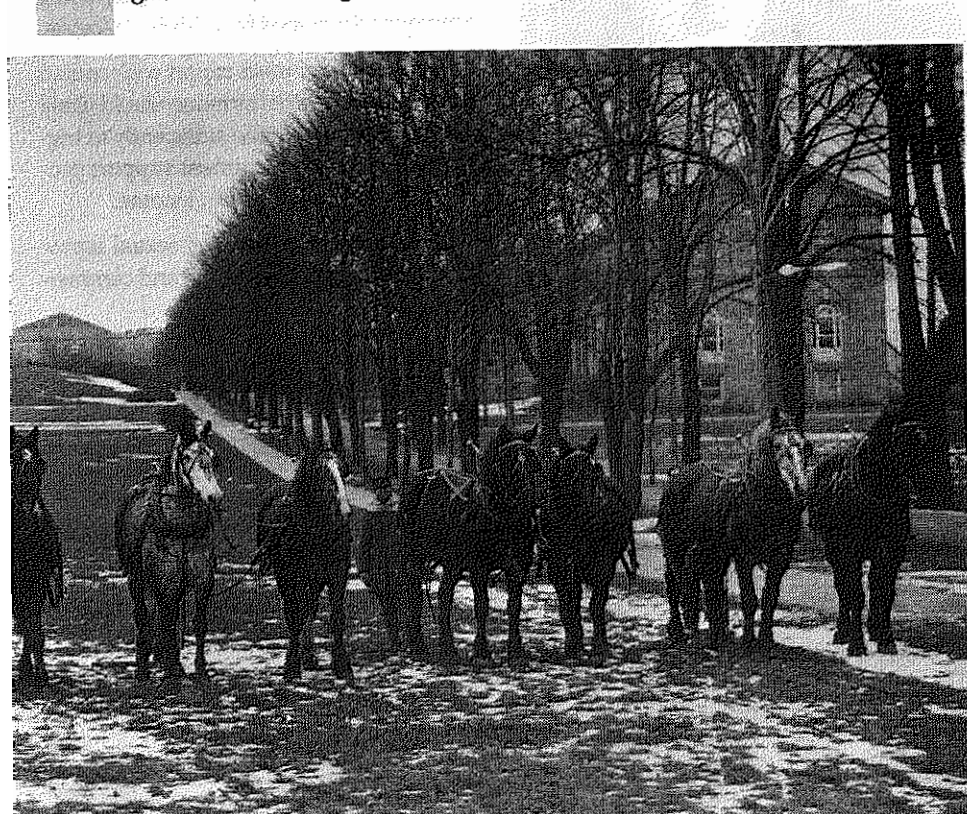
UW agricultural engineers developed this mechanical tree planter to replace the labor that went to war.



Agricultural engineers demonstrate clean plowing for control of European corn borer.

**1945** Bacteriologist Ira B. Baldwin is named College Dean when Dean Fred is named president of the University of Wisconsin.

**1946** Congress passes the Research and Marketing Act to encourage more agricultural marketing research.



**1947** Equipment and methods for land smoothing developed.

Research and design work begins on loose housing for dairy cows. Eventually leads to modern free-stall barn.

**1948** Rudolph K. Froker, an agricultural economist, named College Dean.

Geneticist Joshua Lederberg discovers sexual reproduction of bacteria. The Nobel Prize was awarded for this work 10 years later.

Soil scientists, agricultural engineers, agronomists and horticulturists collaborate on irrigation of crops on Wisconsin's central sands. Helps transform a sandy, wind-blown wasteland into a productive area for growing vegetable crops.

Aaron Bohrod appointed as College's artist in residence.

Prof. Leopold, chair of Department of Wildlife Management, dies while fighting a grass fire on a neighbor's farm. Leaves legacy of wildlife management and land stewardship that guides generations that follow.

**1949** Biochemists announce development of Warfarin—one of the world's most effective and widely used rat killers.

Agricultural engineers field test their first corrugated roll forage crusher. Field conditioning now standard practice to reduce drying time.

**1950** Veterinary scientists develop improved diagnosis and vaccination for brucellosis. These enabled Wisconsin to go from 15 percent of herds infected in 1950 to less than 0.1 percent in 1955.

**1951** First embryo transplants in cattle made. A fertilized ovum is transplanted from one cow to another cow, which then gives birth to the calf. Procedure multiplies genetic influence of state's best cows.

Agronomists, engineers, entomologists and soil scientists develop the first prescription method for growing corn—the "Pacemaker Corn Club."

Department of Food Science is created as separate unit from Dairy Husbandry.

**1952** Three-cut alfalfa management system developed.

Computer programming developed for Dairy Herd Improvement work. Wisconsin herds on DHI testing in 1987 outproduced those not on test by an average of 4,530 pounds of milk per cow per year.

Vernal alfalfa released by R.A. Brink, and L.F. Graber. Served as foundation for winter-hardy, high-yielding, disease resistant commercial varieties, and forms the forage foundation to Wisconsin's \$10-billion-a-year industry.



Soil scientists and agricultural engineers plant corn without plowing.

**1953** Grassland Farming Program begins to build. Research and Extension programs focus on improved forage production, storage and handling. Outstanding forage producers share their experience.

**1954** Research investigations conclude pipeline milkers and refrigerated bulk milk cooling tanks on farms are effective in preserving quality of raw milk.

Poultry scientists add animal fats to broiler rations and significantly improve feed efficiency and growth. For the nation's broiler industry, this development reduces annual feed cost by about \$77 million.

First Farm Progress Days held.

**1955** The 2000-acre Arlington research station was purchased in 1955 with the proceeds from selling the college's Madison farm.

UW-Madison botanists and a biochemist discover the cytokinin class of plant hormones—compounds that promote cell division and differentiation.

**1956** College researchers begin development of computerized farm records program.

Researchers develop milk antibiotic screening procedure based on reduction of tetrazolium compound.

**1957** College faculty begin work with Indonesia to improve agricultural research and educational facilities and programs at Bogor.

**1958** Conrad A. Elvehjem, Department of Biochemistry, named president of University of Wisconsin.

Dairy food researchers develop A-C test to determine when coagulated milk is ready to be cut to make cottage cheese.

**1959** Food scientists are first to develop sterile concentrated milk.

**1961** Superior potato variety released. Research at Marshfield Station shows free stalls are more effective than loose housing for dairy cattle in terms of bedding requirements, clean cows, and desirable environment.

**1962** McIntire-Stennis Forestry Research Act passed.

Animal scientists develop methods for detecting swine stress syndrome

Department of Forestry established.

Land Tenure Center is established in the College, providing a national focus for interdisciplinary research on land ownership and control issues in developing countries.

Soil scientists develop a slow-release fertilizer packet designed to fertilize trees and shrubs over a period of five to ten years, or longer.

**1963** Mechanical cherry harvester developed.

Food scientists perfect a process for making frozen concentrated dairy starter cultures.

Year around stored feeding shown more economical than twice daily green chopping or intensive pasturing of dairy cattle.

**1964** Glenn S. Pound, a plant pathologist, named College Dean.

Mozarella cheese production modernized by direct acidification method.

Department of Landscape Architecture created as a separate unit from the Department of Horticulture.

College faculty begin more than a decade of assistance to the new University of Ife in Western Nigeria.

**1965** Food scientists develop methods to smoke, salt and cure smoked fish to avoid botulism.

Extension created as a separate unit. Cooperative Extension Service administration removed from College.

**1966** Food Research Institute relocates from University of Chicago to the College.

Food scientists develop technique to produce spray-dried butter, a useful ingredient in a variety of food products.

**1967** School of Natural Resources is established in the College.

Interdisciplinary team of College researchers announces process for extracting alfalfa leaf protein in fortification of diets in developing countries.

William H. Sewell, former chairman of Department of Rural Sociology, named Chancellor of University of Wisconsin-Madison.

**1968** Department of Nutritional Sciences is created.

Biochemists isolate and identify of the first active vitamin D metabolite, establishing that vitamin D must be metabolically activated before it functions.

**1969** Wisconsin Legislative hearings on DDT set the stage for nationwide ban. College wildlife ecologist plays a pivotal role in defining environmental impacts of organochlorine pesticides.

**1970** Biochemist Har Gobind Khorana synthesizes the first gene, and later is awarded the Nobel Prize.

Concern about overuse of pesticides leads to establishment of the Environmental Toxicology Center.

**1971** Biochemists announce the isolation and identification of biologically active vitamin D, which leads to its chemical synthesis one year later.

Legislature establishes University of Wisconsin System, "merging" the University of Wisconsin and the Wisconsin State University System.

Students and faculty of landscape architecture prepare plans for Bayfield restoration—a project that becomes the model for historic preservation and community revitalization in many other Wisconsin communities.



**1972** Dairy scientists develop somatic cell count procedure to detect mastitis infection in dairy cattle.

Selenium is found to counteract mercury toxicity.

The natural history of the most common mosquito-borne (summer) encephalitis of children is described.

Vitamin D hormone used to treat milk fever in dairy cattle.

College faculty begin work with Brazilian Agricultural Research Corporation to help train researchers and improve agricultural development.

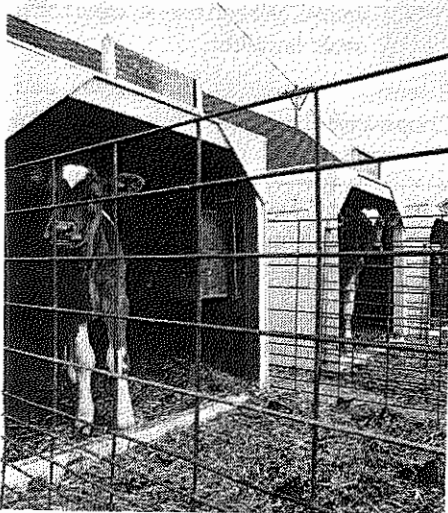
Polyurethane foam is made from whey.

Department of Continuing and Vocational Education is established.

**1973** High protein DAL oat variety is released.

Sapporo Gold elm released (resistant to Dutch elm disease).

**1974** Studies at the Marshfield Research Station showed that raising calves in an unheated hutch or individual pen produced the healthiest calves.



**1975** Department of Food Microbiology and Toxicology established.

Dairy beef production found to be a feasible enterprise.

**1976** Nonsurgical technique developed for transferring cattle embryos.

Walter V. Price Cheese Research Institute established.

Veterinary scientists describe a biological agent smaller than the smallest virus as responsible for a highly fatal disease of mink and show the ailment is closely related to scrapie disease in sheep.

Old World Wisconsin opens, based on plans and research done by Landscape Architecture faculty and students.

Mound system of on-site sewage disposal in problem soils is developed.

Ice nucleation active (INA) bacteria found to be important in producing frost damage to plants.

Food scientists extract pigment from beets to replace synthetic food coloring linked to cancer.

The College's Environmental Awareness Center prepares plans for Soldiers Grove, making it a model community for use of solar power to meet energy needs.

**1977** State's average corn yield exceeds 100 bushels per acre.

Bacteriologist describes site of nitrogen-fixing enzyme in bacteria, a first step in long-term research that may save fertilizer costs by leading to nitrogen-fixing capability in non-leguminous plants such as corn.

**1978** Montello and Green Lake head lettuce varieties resist bolting and early root rot.

Soil scientists develop the Wisconsin Irrigation Scheduling Program. The computer-assisted, decision making process allows growers to reduce irrigation costs, conserve water and lessen risk of pesticides and fertilizers leaching to groundwater.

**1979** Food scientists develop a milk concentrate using ultrafiltration and electro dialysis.

Aquaculture research started.

Analysis of competition and pricing of grocery supermarkets published.

Leo M. Walsh, a soil scientist, is named College Dean.

**1980** Horticulturists clone plant gene for the first time.

Researchers show conventional tower silos to be as effective as the more expensive oxygen-limiting, bottom unloading structures.

Food microbiologists develop simplified method for detection of aflatoxin, a carcinogenic compound formed in grains due to mold contamination.

Food Research Institute toxicologist identifies staphylococcal toxin responsible for Toxic Shock Syndrome, a debilitating infection particularly affecting women.

**1981** Dairy researchers demonstrate on-farm filtration of milk for cheese.

Bacteriologist demonstrates that dioxin is powerful suppressor of infection-fighting immune response in mice.

Animal scientists discover ways to mature and fertilize cattle eggs outside of the cow.

The first transgenic plant (bean protein in sunflowers) demonstrates the potential for genetic engineering in plants.

Food researchers develop process that overcomes flavor problems in spray-dried cheese.

Biotyping of Newcastle disease virus in poultry and birds provides way to control introduction of the disease into the U.S.

**1982** Wildlife ecologists develop procedure to be used in saving the endangered California Condor from extinction.

**1983** Centennial, a high yielding, rust resistant oat variety, released by plant breeders.

Food Research Institute scientists develop a process to reduce the nitrite used in curing bacon by two-thirds.

Microbiologists describe ligninase, the enzyme that degrades lignin in wood for paper making.

**1984** Nutritional scientists show dietary calcium can reduce blood pressure in hypertensive women.

**1985** Bacteriologists observe possible immunosuppression in mice by traces of pesticide (aldicarb) in drinking water.

Near infrared reflectance (NIR) spectrometry measures feed value of forages for improved marketing of forages.

College develops partnership with West African country of the Gambia.

**1986** Plant breeder develops high-protein strains of white navy and black beans.

Horticulturist advances biological pest control through discovery of two native Wisconsin fungi that control destructive parasitic swamp dodder weed in carrot and cranberry.

Chemical compounds in fried ground beef are found to inhibit cancer development.

Marathon red clover variety is released.

Wisconsin farmers, acting through the Wisconsin Milk Marketing Board, fund the Center for Dairy Research—the nation's first farmer-financed dairy research center.

Researchers discovered reasons why some pigs are genetically predisposed to have high cholesterol levels in their blood.

Plant pathologist develops plants that require only five weeks from seed planting to seed production, greatly speeding genetic research.

Food scientist modifies process to remove most cholesterol from butterfat, tallow, lard and egg yolk.

Potato management computer software helps growers make decision about pest control strategies.

UW-Madison horticulturist Brent McCown was the first to insert a gene for herbicide resistance into a woody plant, and the first to regenerate a woody plant from a single leaf cell.



**1987** Very Green Process developed to keep canned green vegetables as green as frozen vegetables.

Carrot strain with super high Vitamin A content developed to help reduce Vitamin A deficiency in poorer countries.

Lysozyme, a natural compound in tears, found to kill bacteria that cause food poisoning.

Agronomists begin genetic engineering experiments on alfalfa to change plant into "biochemical factory" to produce industrial enzymes. Initial work focuses on enzyme important to paper pulping industry.

Animal scientist clones calves by transferring nuclei from multi-cell embryos to one-cell embryos.

Microorganisms and enzymes from various sources shown to age cheese quickly and produce a tastier product. Such accelerated ripening gives low-fat cheddar cheese with better flavor.

**1988** Dairy Forage Research Center scientists develop "forage mat machine" that shortens time hay must cure in field before harvest, reducing chances of costly rain damage.

Plant pathologists Jo Handelsman and Jenifer Parke found native soil bacteria that could be used to ward off root rot in peas, soybeans and alfalfa. Such biological controls can reduce the need for chemical controls.



DNA probe for Johne's disease shortens diagnostic confirmation time from three months to three days—promises to help in marketing Wisconsin dairy cattle.

Agronomists transfer arcelin trait from wild bean plants to commercial varieties to control naturally destructive bean weevil storage pest.

Promising new early fertility test of AI bulls as well as new diagnostic tool for human fertility problems developed.

Peregrine falcons, extinct in Wisconsin since 1965, reintroduced on UW campus, using techniques developed by wildlife ecologists.

Agricultural economists report widespread use of bovine growth hormone would likely increase milk production sufficiently to trigger price drop in government support program and lower dairy farm income.

Protoplast fusion overcomes sexual reproduction barriers between wild and commercial potatoes.

